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| 09/800,703      | 03/07/2001  | Dustin P. Wood       | 884.159US2          | 4036             |

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EXAMINER

GRAYBILL, DAVID E

|          |              |
|----------|--------------|
| ART UNIT | PAPER NUMBER |
|----------|--------------|

2827

DATE MAILED: 09/23/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/800,702

Applicant(s)

GARDUNO, FRANCISCO

Examiner

David E Graybill

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 18 June 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 30-54 is/are pending in the application.
- 4a) Of the above claim(s) 33,36 and 48-54 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 30-32,34,35 and 37-47 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 March 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

Claims 33 and 36 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species, there being no allowable generic or linking claim. Election was made **without** traverse in Paper No. 7.

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the features of claims 35, 37, 44 and 47 must be shown or the features canceled from the claims. No new matter should be entered.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 35, 40, 44 and 47 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor, at the time the application was filed, had possession of the claimed invention. The undescribed subject matter is the limitations, "the at least one signal trace includes at least one segment rotated," "at least one signal trace with segments rotated," and "at least one trace segment rotated." To further

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clarify, the original disclosure provides support only for other than the trace being rotated.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

In the rejections infra, reference labels are generally recited only for the first recitation of identical claim language.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

Claims 30-32, 34, 35, 39, 40 and 42-44 are rejected under 35 U.S.C. 102(b) as being anticipated by Duxbury (5360949).

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30. An integrated circuit package comprising: a first conductive layer 36 having a first grid of holes; a second conductive layer 38 parallel to the first conductive layer, the second conductive layer having a second grid of holes offset from the first grid of holes; and a dielectric layer 12 between the first and second conductive layers.

31. The integrated circuit package of 30 further comprising a signal layer 14 embedded in the dielectric layer.

32. The integrated circuit package of 31 wherein the signal layer includes at least one signal trace.

34. The integrated circuit package of 32 wherein the first grid of holes have an x direction and a y direction, neither of which being parallel to the at least one signal trace.

35. The integrated circuit package of claim 34 wherein the at least one signal trace includes at least one segment rotated substantially 22.5 degrees relative to the x direction.

39. An integrated circuit package comprising: a core 12 having first and second sides; and built-up layers on the first side of the core, the built-up layers including first and second conductive layers with non-aligned grids of degassing holes.

40. The integrated circuit package of 39 further comprising a signal layer between the first and second conductive layers, the

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signal layer including at least one signal trace with segments rotated relative to the grids of degassing holes.

42. The integrated circuit package of 39 wherein: the first conductive layer includes a first grid of degassing holes arranged in an x direction and a y direction; and the second conductive layer includes a grid of degassing holes offset from the first grid of degassing holes in at least one of the x direction and the y direction.

43. The integrated circuit package of 39 wherein: the first conductive layer includes a first grid of degassing holes arranged in an x direction and a y direction; and the second conductive layer includes a grid of degassing holes offset from the first grid of degassing holes in both the x direction and the y direction.

44. The integrated circuit package of 43 further comprising: a signal layer between the first and second conductive layers, the signal layer including at least one trace segment rotated substantially 22.5 degrees relative to the x direction.

To further clarify the teaching that the trace includes a segment rotated substantially 22.5 degrees relative to the x direction, the product of Duxbury inherently possesses the structural characteristics imparted by the process limitation "rotated," at least because the same structure would result if

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the segment was rotated 22.5 degrees, then rotated sufficiently in one or more directions. See In re Fitzgerald, Sanders, and Bagheri, 205 USPQ 594 (CCPA 1980).

To further clarify the teaching of a core having first and second sides and built up layers on the first side, it is noted that the portion of 12 that extends below second conductive layer 38 inherently has a central part [core] having built up layers on the first side.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 37, 41 and 45-47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Duxbury as applied to claims 30-32, 34, 35, 39, 40 and 42-44, and further in combination with Tanahashi (6184477).

Duxbury does not appear to explicitly teach the following:  
37. The integrated circuit package of 30 wherein the first grid of holes includes holes spaced with non-equal pitch in an x direction and in a y direction.

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41. The integrated circuit package of 39 further comprising built-up layers on the second side of the core, the built-up layers on the second side of the core including third and fourth conductive layers with non-aligned grids of degassing holes.

45. The integrated circuit package of 44 further comprising built-up layers on the second side of the core, the built-up layers on the second side of the core including third and fourth conductive layers with non-aligned grids of degassing holes.

46. The integrated circuit package of 45 wherein: the third conductive layer includes a first grid of degassing holes arranged in the x direction and the y direction; and the fourth conductive layer includes a grid of degassing holes offset from the third grid of degassing holes in both the x direction and the y direction.

47. The integrated circuit package of 46 further comprising: a signal layer between the third and fourth conductive layers, the signal layer including at least one trace segment rotated substantially 22.5 degrees relative to the x direction.

Nonetheless, at column 8, line 66 to column 9, line 6, Tanahashi teaches that a first grid of holes includes holes spaced with non-equal pitch in an x direction and in a y direction. In addition, it would have been obvious to combine the product of Tanahashi with the product of Duxbury because it



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would advantageously provide the first conductive layer of Duxbury.

Also, at column 17, lines 33-36, Tanahashi teaches laminating two integrated circuit packages similar to the integrated circuit package of Duxbury. Moreover, it would have been obvious to combine the product of Tanahashi with the product of Duxbury because it would enable design flexibility. Additionally, the product of the combination of Tanahashi and Duxbury would inherently possess the structure of claims 41 and 45-47.

Further, in the combination of Duxbury and Tanahashi, Duxbury teaches the following:

38. The integrated circuit package of 37 further comprising signal traces within the dielectric layer, the signal traces being at angles other than 0, 45, and 90 degrees relative to the first and second grids of holes.

The art made of record and not applied to the rejection is considered pertinent to applicant's disclosure. It is cited primarily to show inventions similar to the instant invention.

***Any telephone inquiry of a general nature or relating to the status (MPEP 203.08) of this application or proceeding should be directed to Group 2800 Customer Service whose telephone number is 703-306-3329.***

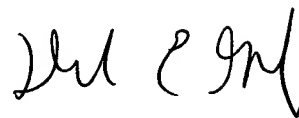
Any telephone inquiry concerning this communication or earlier communications from the examiner should be directed to David E. Graybill at (703) 308-2947. Regular office hours: Monday through Friday, 8:30 a.m. to 6:00 p.m.

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The fax phone number for group 2800 is 703/3087724.

A handwritten signature in black ink, appearing to read 'D.E. Graybill', is positioned above the printed name.

David E. Graybill  
Primary Examiner  
Art Unit 2827

D.G.  
19-Sep-02